## REMARKS

The Office Action dated December 13, 2006 has been received and considered. In this response, claim 22 has been amended to correct an informality and claims 1-17 have been canceled without prejudice or disclaimer to advance the present application. Reconsideration of the outstanding rejection in the present application is respectfully requested based on the following remarks.

**Anticipation Rejection of Claims 1-12 and 21-37**

At page 3 of the Office Action, claims 1-12 and 21-37 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ikeda (U.S. Patent No. 5,970,032). This rejection is respectfully traversed.

Claims 1-12 have been canceled without prejudice or disclaimer, thereby obviating their rejection.

Independent claim 21 recites the features of:

a first actuator control law portion comprising an input to receive a representation of a first actuator position, and an output;

a second actuator control law portion comprising an input to receive a representation of a second actuator position, and an output;

a first actuator decoupler portion comprising a first input coupled to the output of the first actuator control law portion and a second input coupled to the output of the second actuator control law portion, and an output to provide a signal with decoupling compensation for a first actuator based on the representation of the second actuator position.

At page 7, the Office Action erroneously assumes that claim 21 only has limitations similar to claims 1-12 and therefore rejects claim 21 under the same rationale as applied to claims 1-12 (now canceled). However, contrary to the assertions of the Office Action, claim 21 recites a number of features distinct from the subject matter of claims 1-12. To illustrate, claim

21 recites the feature "an output to provide a signal with decoupling compensation for a first actuator based on the representation of the second actuator position." None of claims 1-12 are directed to this feature of decoupling compensation for a first actuator based on a representation of a second actuator position. Thus, as the Office Action fails to provide any basis for how Ikeda can be interpreted to disclose at least the above-identified features of claim 21 not found in claims 1-12, the Office Action fails to provide a *prima facie* case of anticipation with respect to particular combination of features recited by claim 21.

Moreover, not only does the Office Action fail to establish how Ikeda discloses each and every feature of claim 21 with any particularity, Ikeda in fact fails to disclose or suggest at least one feature recited by claim 21. As noted above, claim 21 recites the feature "an output to provide a signal with decoupling compensation for a first actuator based on the representation of the second actuator position." Even if it is assumed, *arguendo*, that the Office Action's interpretation of decoupling as "stopping" (*Office Action*, p. 4) is tenable (which it is not), a thorough review of the disclosure of Ikeda reveals that Ikeda fails to disclose or suggest that a signal is output with decoupling compensation for one actuator based on a representation of a position of another actuator as provided by claim 21. At page 3, the Office Action addresses a related issue by asserting that Ikeda teaches the "tracking servo is constantly modified based on a [sic] previous tracking ***and focusing*** conditions," but the Office Action fails to cite any passage of Ikeda in support of this reading or provide any explanation as to how Ikeda would be interpreted by one of ordinary skill in the art to support this reading. Further, the Applicants are unable to identify any passage of Ikeda that could be reasonably interpreted to teach that the tracking servo is modified based on both tracking conditions and focusing conditions (i.e., the position of the focus servo as another actuator) and thus the Office's rationale with respect to Ikeda disclosing a signal having decoupling compensation for a first actuator based on a second actuator position is unsupported by the disclosure of Ikeda.

In tacit acknowledgment that Ikeda fails to expressly disclose decoupling compensation for a first actuator based on the representation of a second actuator position, the Office Action turns to an inherency rationale instead and states at page 2 that "Ikeda's servo signal ***inherently*** has the properties of the amended features such as . . . 'providing with decoupling compensation signal" (emphasis added). With respect to the Office's assertion that this feature is inherent to

the disclosure of Ikeda, the Applicant's refer the Office to M.P.E.P. § 2112. As noted in this section of the M.P.E.P., the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993). In addition, "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter.1990) (emphasis in original). It is noted that the Office Action fails to provide any basis in fact or technical reasoning to support the asserted determination that the provision of decoupling compensation "necessarily flows" from the disclosure of Ikeda, much less that a signal having decoupling compensation for a first actuator based on a second actuator position "necessarily flows" from the disclosure of Ikeda. Thus, the Office Action fails to establish a *prima facie* case for its assertions that this feature is inherent to the teachings of Ikeda. Further, as noted above, no reasonable interpretation of Ikeda can in fact support any assertion that Ikeda discloses decoupling compensation as would be understood by one of ordinary skill in the art and from the context of the disclosure and claims of the present application.

Independent claim 23 recites the features of:

a focus control loop;

a tracking control loop, wherein the focus control loop and the tracking control loop are cross-coupled, wherein a focus control command excites the tracking control loop and a tracking control command excites the focus control loop; and

a decoupler configured to produce a modified focus control command from the focus control command and the tracking control command, and configured to produce a modified tracking control command based on the tracking control command and the focus control

command, wherein the modified focus control command has a different excitation of the tracking control loop than the focus control command and wherein the modified tracking control command has a different excitation of the focus control loop than the tracking control command.

As with claim 21 as discussed above, the Office Action erroneously assumes that claim 23 only has limitations similar to claims 1-12 and therefore rejects claim 23 under the same rationale as applied to claims 1-12 (now canceled). However, contrary to the assertions of the Office Action, claim 23 recites a number of features distinct from the subject matter of claims 1-12. To illustrate, claim 23 recites the feature "wherein a focus control command excites the tracking control loop and a tracking control command excites the focus control loop." None of claims 1-12 are directed to this feature of excitation of a tracking control loop based on a focus control command or the excitation of a focus control loop based on a tracking control command. As another example, claim 23 also recites the feature "wherein the modified focus control command has a different excitation of the tracking control loop than the focus control command and wherein the modified tracking control command has a different excitation of the focus control loop than the tracking control command." Claims 1-12 do not recite any features directed to a modified focus control command having a different excitation of the tracking control loop than the focus control command and so forth. Thus, as the Office Action fails to provide any basis for how Ikeda can be interpreted to disclose at least the above-identified features of claim 23 not found in claims 1-12, the Office Action fails to provide a *prima facie* case of anticipation with respect to particular combination of features recited by claim 23.

Moreover, not only does the Office Action fail to establish how Ikeda discloses each and every feature of claim 23 with any particularity, Ikeda in fact fails to disclose or suggest at least one feature recited by claim 23. As noted above, claim 23 recites the feature "wherein a focus control command excites the tracking control loop and a tracking control command excites the focus control loop." Ikeda fails to disclose or even suggest the excitation of any analog to a tracking control loop disclosed by Ikeda by any analog to a focus control command. Likewise, Ikeda also fails to disclose or even suggest the excitation of any analog to a focus control loop disclosed by Ikeda by any analog to a track control command.

Claim 23 also recites the feature of "a decoupler configured to produce a modified focus control command from the focus control command and the tracking control command, and configured to produce a modified tracking control command based on the tracking control command and the focus control command." As described above with respect to claim 21, the disclosure of Ikeda does not support the Office Action's assertion at pages 3-4 that the "tracking servo is constantly modified based on previous tracking ***and focusing*** conditions." Rather, no disclosure is found in Ikeda for modifying a tracking servo based on both tracking conditions and focusing conditions. Thus, no disclosure is found in Ikeda for producing a modified focus control command from a focus control command and a tracking control command, or vice versa, as provided by claim 23.

Claim 23 further recites the feature of "wherein the modified focus control command has a different excitation of the tracking control loop than the focus control command and wherein the modified tracking control command has a different excitation of the focus control loop than the tracking control command." As Ikeda fails to disclose or suggest the modified focus control command or the modified tracking control command, Ikeda necessarily fails to disclose or suggest these features. Moreover, even if it is assumed, *arguendo*, that Ikeda teaches that the "tracking servo is constantly modified based on previous tracking and focusing conditions," Ikeda fails to disclose or suggest that signal used to control the tracking servo is modified, much less that the signal after modification has a different excitation of a control loop than before modification. Thus, Ikeda fails to disclose or even suggest a modified focus control command having a different excitation of a tracking control loop than the focus control command from which it is based, or a modified tracking control command having a different excitation of a focus control loop than the tracking control command from which it is based as provided by claim 23.

Independent claim 26 recites the features of:

determining cross-coupling characteristics of a focus actuator and a tracking actuator of an optical pickup unit; and

determining a decoupling matrix to decouple the focus actuator and the tracking actuator.

Independent claim 36 recites similar features. As with claims 21 and 23 as discussed above, the Office Action erroneously assumes that claims 26 and 36 only have limitations similar to claims 1-12 and therefore rejects claims 26 and 36 under the same rationale as applied to claims 1-12. However, contrary to the assertions of the Office Action, claims 26 and 36 recite a number of features distinct from the subject matter of claims 1-12. To illustrate, claim 26 recites the feature "determining a decoupling matrix to decouple the focus actuator and the tracking actuator" and claim 36 recites a similar feature. Claims 1-12 do not recite any features directed to a decoupling matrix. Thus, as the Office Action fails to provide any basis for how Ikeda can be interpreted to disclose at least the above-identified features of claims 26 and 36 not found in claims 1-12, the Office Action fails to provide a *prima facie* case of anticipation with respect to particular combination of features recited by claims 26 and 36.

Moreover, not only does the Office Action fail to establish how Ikeda discloses each and every feature of claims 26 and 36 with any particularity, Ikeda in fact fails to disclose or suggest at least one feature recited by claims 26 and 36. As noted above, claim 26 recites the feature "determining cross-coupling characteristics of a focus actuator and a tracking actuator" and claim 36 recites similar features. The Office Action references Fig. 3A of Ikeda and asserts that "loop signals are cross coupled connections" and that the "servo loop characteristics is [sic] the cross-coupling characteristics." *Office Action*, p. 7. The Applicants respectfully disagree. It is noted that the Office Action asserts that "loop signals" are "cross coupled connections" without any basis in fact or technical reasoning in support of this asserted equivalence and thus the Office Action fails to establish sufficient support for its interpretation. Further, one of ordinary skill in the art will appreciate that a loop signal by itself is not a cross-coupled connection as there is nothing for it to cross-couple with. Thus, contrary to the assertions of the Office Action, Ikeda fails to disclose or even suggest the determination of cross-coupling characteristics of either of a focus actuator or a tracking actuator, much less both. In fact, the term "cross-couple," its variants and its analogs do not appear in the disclosure of Ikeda in any form.

As another example, claim 26 further recites the feature "determining a decoupling matrix to decouple the focus actuator and the tracking actuator" and claim 36 recites similar features. The Office Action asserts at pages 7-8 that Fig. 3A of Ikeda discloses that "DSP 140 and servo processor 142 include decoupling-matrix of tracing an focusing." It is noted that

description of the rationale or citing of a particular passage of Ikeda is provided by the Office Action in support of its interpretation of the DSP 140 and the servo processor 142 has including a "de-coupling matrix of tracing and focusing." In fact, this feature is not found in Ikeda. Nowhere in Ikeda do the term "decouple" or "matrix" or their analogs and variants appear. Further, Ikeda fails to disclose a matrix of any kind used to decouple a focus actuator and a tracking actuator. Accordingly, Ikeda fails to disclose or suggest at the identified claim feature of claim 26 and 36.

Independent claim 31 recites the features:

a lens assembly;
a focus actuator that is configured to move the lens assembly in a focus direction;
a tracking actuator that is configured to move the lens assembly in a tracking direction; and
a decoupler configured to decouple the focus actuator from the tracking actuator by reducing signal cross coupling.

The Office Action rejects claim 31 under the same rationale as the rejection of claims 1-32. Contrary to the assertions of the Office Action, Ikeda fails to disclose or even suggest at least the feature of "a decoupler configured to decouple the focus actuator from the tracking actuator by reducing signal cross coupling." At page 2, the Office Action interprets "to reduce signal cross-coupling" as "a noises/errors reducing operation for preventing a signal's disturbances effect." The Office Action further asserts that "Ikeda teaches this feature as illustrated in FIG. 4[,] where an actuator 16 is controlled by a gain/phase adjusted servo signal. In other words, a servo signal ***inherently*** has the property of Applicant's claimed feature to reduce signal cross-coupling." *Id.* (emphasis added). Thus, the Office Action interprets the gain/phase adjustment circuit of Fig. 4 of Ikeda as the decoupler and interprets the gain/phase error adjustment taught by Ikeda as reducing signal cross coupling. The Applicants respectfully disagree and submit that this interpretation is unsupported by the disclosure of Ikeda and inconsistent with the knowledge of one of ordinary skill in the art.

Ikeda fails to teach that the gain adjustment and phase error adjustment result in the reduction of signal cross-coupling. Rather, Ikeda teaches that a focus error signal FES is generated from the signal reproduced from the optical head 1 and that that the gain adjustment applied to the focus error signal FES is used to correct inconsistency among the individual optical heads 1. *Ikeda*, col. 8, lines 13-16 and 18-22 ("[t]he gain of the gain adjusting circuit 3 is controlled by a control signal from the controller 8, and the inconsistency among the individual optical heads 1 is corrected."). One of ordinary skill in the art will readily appreciate that the application of the gain adjustment to correct inconsistency among individual optical heads does not decouple a focus actuator from a tracking actuator, nor does it reduce signal cross-coupling.

Turning to the phase compensation referenced by the Office Action, Ikeda is silent as to the intent or effect of the "phase compensation process" performed on the focus error signal FES by the phase compensation circuit 9 of Fig. 4 of Ikeda. *See, e.g., Ikeda*, col. 8, lines 35-58 (note absence of description of utility of phase compensation). Regardless, Ikeda fails to disclose or even suggest that the phase compensation performed for the focus error signal FES is based in any manner on the tracking control and thus one of ordinary skill in the art will readily appreciate that the phase compensation process of Ikeda does not have the effect of decoupling the focus actuator from the tracking actuator nor does it result in a reduction of signal cross-coupling. Accordingly, Ikeda fails to disclose or suggest "a decoupler configured to decouple the focus actuator from the tracking actuator by reducing signal cross coupling" as recited by claim 31.

For at least the reasons described above, it is respectfully submitted that Ikeda fails to disclose or even suggest each and every feature recited by independent claims 21, 23, 26, 31, and 36. Ikeda therefore fails to disclose each and every feature of claims 22, 24, 25, 27-30, 32-35, and 37 at least by virtue of their dependency from one of claims 21, 23, 26, 31, or 36. Moreover, these dependent claims recite additional novel features.

To illustrate, claim 22 recites the additional features of "a linear modification module having . . . an output to provide a linearly scaled representation of a value received at its input, wherein the linearly scaled representation is used to provide the signal with decoupling compensation for the first actuator decoupler portion." Nowhere in Ikeda is it disclosed that a

linearly scaled representation of a value received at an input is provided at an output. With respect to claim 10, the Office Action appears to assert that the sampling of an analog value as taught by Ikeda discloses a "linear value." *See Office Action*, p. 6. However, one of ordinary skill in the art will readily appreciate that the sampling of an analog value is not the same as linearly scaling a value as provided by claim 22. As another example, none of the additional features recited by claim 30 are disclosed or suggested by Ikeda.

As yet another example, claim 32 recites the additional features "wherein the decoupler modifies a focus command to have a reduced effect on a tracking position of the lens assembly and modifies a tracking command to have a reduced effect on a focus position of the lens assembly." As described above, Ikeda fails to disclose or suggest the modification of a command for one mechanism of a lens assembly to have a reduced effect on another mechanism of the lens assembly as provided by claim 32.

In view of the foregoing, it is respectfully submitted that the anticipation rejection of at least claims 21-37 is improper. Reconsideration and withdrawal of this rejection therefore is respectfully requested.

**Anticipation Rejection of Claims 13-17**

At page 10 of the Office Action, claims 13-17 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ikeda et al. Claims 13-17 have been canceled without prejudice or disclaimer, thereby obviating their rejection. Withdrawal of this rejection therefore is respectfully requested.

**Conclusion**

The Applicants respectfully submit that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

The Commissioner is hereby authorized to charge any fees that may be required, or credit any overpayment, to Deposit Account Number 50-3797.

Respectfully submitted,

/Ryan S. Davidson/ 12 March 2007

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